EE321 Lab 5 Report

S025015

$$Timer\ Period = \frac{Prescaler\ Value\ \times\ Timer\ Register\ Increment}{Input\ Clock\ Frequency}$$

bit 5-4 **T1CKPS<1:0>**: Timer1 Input Clock Prescale Select bits
11 = 1:8 Prescale value
10 = 1:4 Prescale value
01 = 1:2 Prescale value
00 = 1:1 Prescale value

For the prescalers which is created before, T1CON.T1CKPS1 = 0 ;T1CON.T1CKPS0 = 0. This means 1:1 scale. And we set prescalers T1CON.T1CKPS1 = 1 ;T1CON.T1CKPS0 = 1. This means 1:8 scale.

bit 1 **TMR1CS**: Timer1 Clock Source Select bit
1 = External clock from pin RB6/T1OSO/T1CKI/PGC (on the rising edge)
0 = Internal clock (FOSC/4)

Set the internal clock as the clock as the source Timer1:
T1CON.TMR1CS = 0;

Set the most significant byte of the timer/counter register:
TMR1H = 0xC2;

Set the least significant byte of the timer/counter register
TMR1L = 0xF7;

Turn timer on:
T1CON.TMR1ON = 1;

Clear the Timer1 interrupt flag:
PIR1.TMR1IF = 0;

Now we have a timer and interrupt. When the timer overflows, the interrupt will be activated, calling the interrupt function within our program.

The equation that I used to find starting point for when prescaler is 8:

$$2^{16} - \frac{10^6}{4 \times 8} = 49911 = C2F7$$


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